ATTACHMENT A
TO RESOLUTION NO. R9-2004-0002

TENTATIVE AMENDMENT TO THE WATER QUALITY CONTROL PLAN FOR THE SAN DIEGO REGION TO INCORPORATE A TOTAL MAXIMUM DAILY LOAD (TMDL) FOR DISSOLVED COPPER IN THE SHELTER ISLAND YACHT BASIN, SAN DIEGO BAY

This Basin Plan Amendment establishes a Total Maximum Daily Load (TMDL) and associated waste load reductions for dissolved copper in the Shelter Island Yacht Basin portion of San Diego Bay. This Amendment includes a program to implement the TMDL and monitor its effectiveness. Chapters 2, 3, and 4 of the Basin Plan are amended as follows:

1. **Chapter 2, Beneficial Uses**
   Table 2-3. ***Beneficial Uses of Coastal Waters, San Diego Bay***

Add the following footnote 3 to San Diego Bay

> [3]The Shelter Island Yacht Basin portion of San Diego Bay is designated as an impaired water body for dissolved copper pursuant to Clean Water Act Section 303(d). A Total Maximum Daily Load (TMDL) has been adopted to address this impairment. See Chapter 3, Water Quality Objectives for Pesticides, Toxicity and Toxic Pollutants and Chapter 4, Total Maximum Daily Loads.

2. **Chapter 3, Water Quality Objectives**
   Inland Surface Waters, Enclosed Bays and Estuaries, Coastal Lagoons, and Ground Waters

Water Quality Objectives for Pesticides:
Add a third paragraph as follows:

> The Shelter Island Yacht Basin portion of San Diego Bay is designated as an impaired water body for dissolved copper pursuant to Clean Water Act Section 303(d). A Total Maximum Daily Load (TMDL) has been adopted to address this impairment. See Chapters 2, Table 2-3, *Beneficial Uses of Coastal Waters, San Diego Bay, Footnote 3* and Chapter 4, Total Maximum Daily Loads.

Water Quality Objectives for Toxicity:
Add a fourth paragraph as follows:

> The Shelter Island Yacht Basin portion of San Diego Bay is designated as an impaired water body for dissolved copper pursuant to Clean Water Act Section 303(d). A Total Maximum Daily Load (TMDL) has been adopted to

address this impairment. See Chapters 2, Table 2-3, *Beneficial Uses of Coastal Waters, San Diego Bay, Footnote 3* and Chapter 4, Total Maximum Daily Loads.

Water Quality Objectives for Toxic Pollutants:

Add a second paragraph as follows:

The Shelter Island Yacht Basin portion of San Diego Bay is designated as an impaired water body for dissolved copper pursuant to Clean Water Act Section 303(d). A Total Maximum Daily Load (TMDL) has been adopted to address this impairment. See Chapters 2, Table 2-3, *Beneficial Uses of Coastal Waters, San Diego Bay, Footnote 3* and Chapter 4, Total Maximum Daily Loads.

3. **Chapter 4, Implementation**

Add the following new section to Chapter 4:

TOTAL MAXIMUM DAILY LOADS

Total Maximum Daily Load (TMDL) for Dissolved Copper, Shelter Island Yacht Basin, San Diego Bay

On February 11, 2004 the Regional Board adopted Resolution No. R9-2004-0002, *A Resolution Adopting an Amendment to the Water Quality Control Plan for the San Diego Region to Incorporate a Total Maximum Daily Load (TMDL) for Dissolved Copper in the Shelter Island Yacht Basin, San Diego Bay*. The TMDL Basin Plan Amendment was subsequently approved by the State Water Resources Control Board on [Insert Date], the Office of Administrative Law on [Insert Date], and the United States Environmental Protection Agency on [Insert Date].

The TMDL is described in the *Technical Report for Total Maximum Daily Load (TMDL) for Dissolved Copper in Shelter Island Yacht Basin, San Diego Bay*, dated February 11, 2004.

Problem Statement

Dissolved copper levels in Shelter Island Yacht Basin (SIYB) waters violate water quality objectives for copper, toxicity, and pesticides. Dissolved copper concentrations in SIYB threaten and impair the designated beneficial uses of marine habitat (MAR), and wildlife habitat (WILD).

Numeric Target

The TMDL Numeric Targets for the copper, toxicity and pesticides water quality objectives are set equal to the numeric water quality objectives for dissolved copper as defined in the California Toxics Rule (CTR) and shown below.

Table 4-10. TMDL Numeric Targets

Exposure	Water Quality Objective*	Numeric Target*
Continuous or Chronic (4 day average)	3.1 µg Cu/L	3.1 µg Cu/L
Maximum or Acute (1 hour average)	4.8 µg Cu/L	4.8 µg Cu/L

* Concentrations should not be exceeded more than once every three years.

Source Analysis

Ninety-eight percent (98%) of all copper loading to SIYB is attributable to copper-based antifouling paints applied to the hulls of recreational boats. The passive leaching of copper from antifouling paint is ninety-three percent (93%) of the total loading. The remaining five percent (5%) of total copper loading results from underwater hull cleaning operations in SIYB.

Table 4-11 Summary of Dissolved Copper Sources to SIYB

Source	Mass Load (kg Cu/year)	Percent Contribution (% Cu)
Passive Leaching	2000	93
Hull Cleaning	100	5
Urban Runoff	30	1
Background	30	1
Direct Atmospheric Deposition	3	<1
Sediment	0	0
Combined Sources	**2163**	**100**

Total Maximum Daily Load or Loading Capacity

The TMDL or loading capacity for dissolved copper discharges into SIYB is 567 kg Cu/year.

Margin of Safety

The TMDL includes an explicit and implicit margin of safety (MOS). Ten percent (10%) of the loading capacity was reserved as an explicit MOS and calculated to be 57 kg Cu/year. The implicit MOS was incorporated into the TMDL source analysis through numerous conservative assumptions.

Waste Load Allocations, Load Allocations and Waste Load Reductions

A seventy-six percent (76%) overall reduction of residual copper loading to SIYB is required to meet the TMDL of 567 kg Cu/year as shown in the table below. The assigned allocations from each source translate into a percent reduction of dissolved copper from current loading. Loading due to passive leaching must be reduced by eighty-one percent (81%) from current loading. Loading due to underwater hull cleaning must be reduced by twenty-eight percent (28%) from current loading. From an overall perspective,

passive leaching loading must be reduced by seventy-five percent (75%) from the combined total loading of all sources to SIYB. Underwater hull cleaning loading must be reduced by one percent (1%) from the combined total loading of all sources to SIYB.

Table 4-12 TMDL and Allocation Summary

Source	Current Load (kg Cu/year)	Percent Contribution (% Cu)	Allocation Type	Allocation (kg Cu/year)	Percent Reduction From Current Source Load (%)	Percent Reduction from Total Loading to SIYB (%)
Passive Leaching	2000	93	Waste Load	375	81	75
Hull Cleaning	100	5	Waste Load	72	28	1
Urban Runoff	30	1	Waste Load	30	0	0
Background	30	1	Load	30	0	0
Direct Atmospheric Deposition	3	<1	Load	3	0	0
Sediment	0	0	Load	0	0	0
Current Mass Load	2163	100				0
Margin of Safety				57		0
TMDL				567		0
Total Load Reduction					76	76

TMDL Implementation Plan

The necessary actions to implement the TMDL are described in the *Technical Report for Total Maximum Daily Load (TMDL) for Dissolved Copper in Shelter Island Yacht Basin, San Diego Bay*, dated February 11, 2004 and summarized below:

1. Regional Board Actions

The Regional Board will take the following actions:

A. Mandate compliance with the copper waste load reductions specified in the TMDL through the issuance of an NPDES permit to the Port of San Diego and the SIYB marina owner/operators. The Regional Board will adopt the NPDES permit within 270 days of USEPA approval of the TMDL Basin Plan Amendment;

B. Issue a directive pursuant to California Water Code section 13376 requiring the SIYB marina owners/operators to submit an NPDES permit application within 60 days of USEPA approval of the TMDL Basin Plan Amendment;

C. Require the Port of San Diego and the marina owner/operators to conduct boater education programs pursuant to the NPDES permit;

D. Require compliance monitoring in SIYB pursuant to the NPDES permit or a California Water Code section 13225 directive;

E. Require the Port of San Diego to coordinate and oversee commercial demonstrations and scientific studies pursuant to a California Water Code section 13225 directive. The Regional Board will issue the directive within 90 days of USEPA approval of the TMDL Basin Plan Amendment.

F. Pursue regulatory and legislative solutions with other governmental agencies having legal authority over the registration, sale, and use of copper antifouling paints in California to address the problem in SIYB.

2. Discharger Actions

The following persons cause or permit the discharge of residual dissolved copper to SIYB:

Port of San Diego
SIYB Marina owners/operators
Persons owning boats moored in SIYB
Underwater hull cleaners operating in SIYB

Pursuant to the Regional Board's NPDES permit, the Port of San Diego and the marina owners/operators will take the following actions:

A. Meet copper waste load reductions;

B. Conduct boater education programs;

C. Participate in compliance monitoring in SIYB; and

D. Coordinate and oversee commercial demonstrations and scientific studies.

Compliance Schedule

Copper waste load reductions are required over a 17-year staged compliance schedule period. The first stage consists of an initial 2-year grace period during which no copper waste load reductions are required. The subsequent 15-year reduction period is comprised of three stages during which incremental copper waste load reductions are required as shown below.

Table 4-13 Interim Numeric Targets for Attainment of the TMDL

Stage	Time Period	Percent Reduction from Current Estimated Loading	Reduction to be Attained by End of Year	Estimated Interim Target Loading (kg dissolved Cu/year)
Stage 1	Years 1-2	0%	N/A	N/A
Stage 2	Years 2-7	10%	7	1900
Stage 3	Years 7-12	40%	12	1300
Stage 4	Years 12-17	76%	17	567